

(12) UK Patent Application (19) GB (11) 2 040 741 A

- (21) Application No 7903291
(22) Date of filing 31 Jan 1979
(43) Application published
3 Sep 1980
(51) INT CL³
B23B 51/04
(52) Domestic classification
B3C 1B6B 1B6H 1B6L
1B6N
(56) Documents cited
GB 1521840
GB 1521839
GB 1516143
GB 1511085
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GB 961288
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(58) Field of search
B3C
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(54) Annular cutting tool

(57) A tool for cutting holes in rolled up polythene sheeting comprises a perforated cylindrical blade 10, having one edge serrated to provide an annular array of cutting teeth 11, and the other end 13 open for escape of scrap. A shaft 15 is connected across the open end 13 by stirrup 14 and is receivable by a drill chuck 16. The tool is used in conjunction with a nozzle 19 for spraying water onto the working zone for cooling purposes. Tearing and unwanted remnants as left by punching or unwanted welds between adjacent sheets as left by heated blades are avoided.

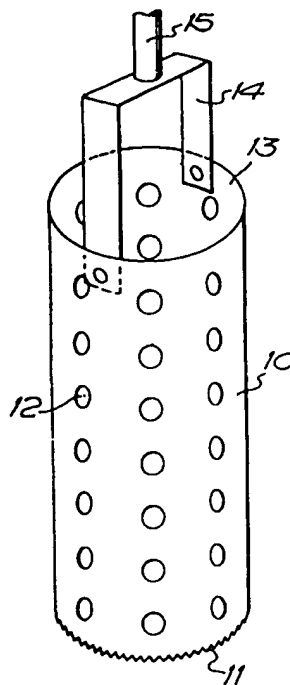


FIG. 1

The drawing(s) originally filed was/were informal and the print here reproduced is taken from a later filed formal copy.

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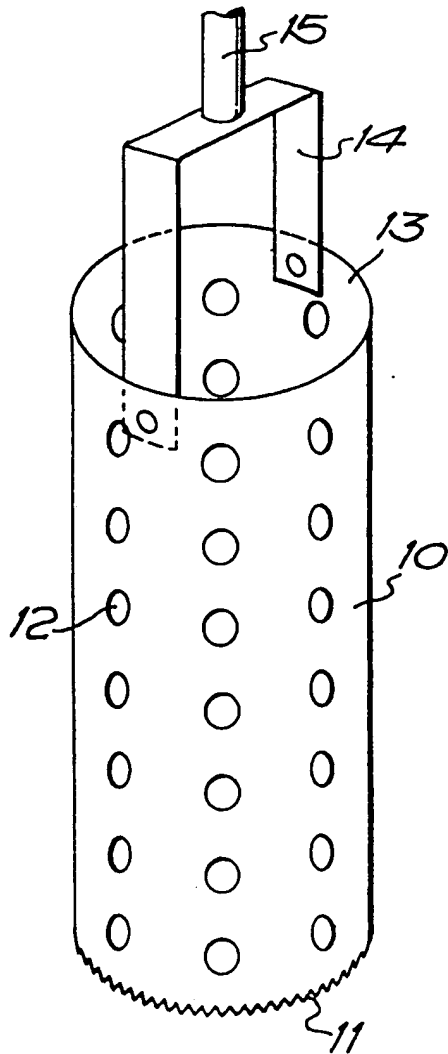


FIG. 1

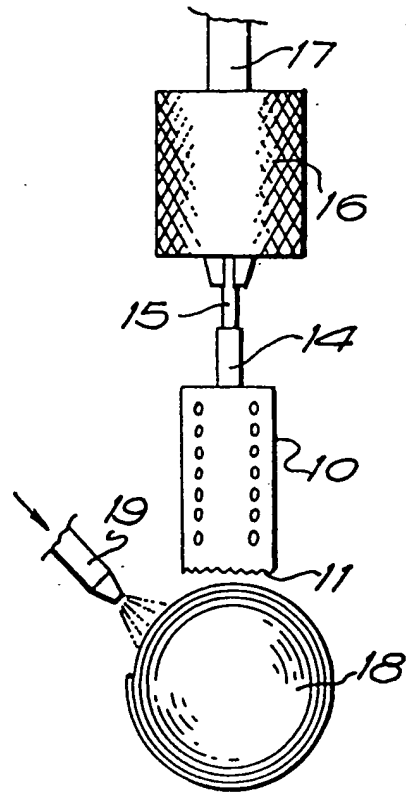


FIG. 2

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SPECIFICATION

Perforating polythene sheeting

5 This invention relates to a device for perforating synthetic plastics material such as polyethylene sheeting in the roll.

For some applications it is desirable to make holes in the sheeting and lay it flat to provide a covering with a large number of perforations.

For punching the necessary holes, according to the prior art one can penetrate the polythene sheeting with a punch tool, preferably spiked to ease penetration, but this does not provide a clean hole, a ridge of displaced material being left around the aperture even when carefully trimmed. A more sophisticated method is to use an electrically heated circular blade which cuts through by melting the polythene rather than by cutting it and thus avoids mechanical stress on the material, however, where several superposed layers are cut through, as in a roll, there is a serious risk of the layers becoming stuck together due to fusion of the rims of the holes in adjacent layers. In addition discs cut out from the sheets tend to clog up the interior of the tubular knife.

It is an object of the invention to provide a device or tool for cutting such sheeting which will obviate as many as possible of the above disadvantages as possible.

According to the invention, a device for perforating synthetic plastics material comprises a tool in the form of a cylindrical blade, the periphery of one end of the blade being formed with serrations providing cutting teeth.

The provision of cutting teeth eliminates the use of heated blades which tend to weld superposed layers together.

Preferably a plurality of apertures are provided in the cylindrical wall of the tool, and the upper end of the tool is open, so that material cut out by the blade is ejected from the top.

In a preferred embodiment, the tool is carried on a stirrup on the end of a spindle which is adapted to be gripped by the chuck of a drill which may be power-operated so that turning of the drill spindle will rotate the tool.

A preferred embodiment of tool according to the invention is shown by way of example with reference to the accompanying drawings wherein:-

Figure 1 is a perspective view of a tool according to the invention and

Figure 2 is a diagram showing the use of the tool

As shown in Figure 1, a device or tool according to the invention for perforating polythene sheets in roll form comprises a cylinder 10, one end of which is provided with teeth 11, to form an annular serrated blade. The wall of the cylinder has a plurality of apertures 12 for cooling and emission of scrap, and the top end 13 is open to ensure that scrap cut out from the sheets can escape.

A stirrup 14 is rivetted across the open top 13 and is connected to a shaft 15 which is adapted to be gripped in the chuck of e.g. an electrically operated and preferably hand portable drill.

As shown in Figure 2 the tool 10 is used with the shaft 15 gripped in the jaws of a chuck 16 mounted on a drill spindle 17. The tool is presented to a roll of polyethylene sheeting 18, and is driven by the drill to cut through each layer of sheeting in turn, by means of the teeth 11. Water is sprayed into the working zone by a nozzle 19 for cooling purposes, a scrap cut out of the holes being formed in the sheeting escapes from the top 13 of the cylinder 10.

The deformations and slips left by punching on the one hand, and the unwanted welding of layers caused by heated knives on the other are avoided to provide clean cut holes with no upstanding rims or tears.

CLAIMS

1. A device for perforating synthetic plastics sheeting comprising a tool in the form of a cylindrical blade, the periphery of one end of which has serrations to provide an annular array of cutting teeth.

2. A device according to Claim 1 wherein the blade is open at the end opposite the annular array to allow exit of waste.

3. A device according to Claim 1 or 2 wherein the cylinder is perforated.

4. A device according to Claim 1, 2 or 3 wherein the blade is carried by a stirrup on a shaft adapted to be gripped by the jaws of a drill chuck.

5. A device according to Claim 4 further associated with a nozzle for spraying water onto the operating area of the blade for cooling purposes.

6. A device for perforating synthetic plastics sheeting substantially as hereinbefore described with reference to the accompanying drawings.

Printed for Her Majesty's Stationery Office by Croydon Printing Company Limited, Croydon Surrey, 1980.
Published by the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.

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